16-677

HOBBS OCD

MAY 09 2016

RECEIVED

Form 3160-3
(March 2012)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMNM122622 BHL

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. Endurance 36 State Com 706H (38129)

2. Name of Operator EOG Resources, Inc (7377)

9. API Well No. 30-025- 43228

3a. Address P.O. Box 2267 Midland, TX 79702

3b. Phone No. *(include area code)* 432-686-3689

10. Field and Pool, or Exploratory WC-025 G-09 S263327G; Upper WC (98097)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface 404' FSL & 2350' FWL, SENW (F), Sec 36, 26S, 33E

At proposed prod. zone 230' FNL & 2314' FWL, NENW (C), Sec 25

NORTHODOX LOCATION

11. Sec., T. R. M. or Blk. and Survey or Area Section 36, T26S, R33E

14. Distance in miles and direction from nearest town or post office*
Approximately +/- 27 miles Southwest from Jal, New Mexico

12. County or Parish Lea

13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 230', 330' PP

16. No. of acres in lease 1640 Fed, 303.52 St.

17. Spacing Unit dedicated to this well 236.50 ac.

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 662' from 705H

19. Proposed Depth 19855' MD, 12590' TVD

20. BLM/BIA Bond No. on file NM 2308

21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3338' GL

22. Approximate date work will start* 06/01/2016

23. Estimated duration 25 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature Stan Wagner — Name *(Printed/Typed)* Stan Wagner — Date 3/2/16

Title Regulatory Specialist

Approved by *(Signature)* /s/George MacDonell — Name *(Printed/Typed)* — Date MAY - 4 2016

Title FIELD MANAGER — Office CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are at

See attached NMOCD Conditions of Approval

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

per KZ 05/11/16

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

MAY 12 2016

EC

EOG RESOURCES, INC.
ENDURANCE 36 STATE COM NO. 706H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	870'
Top of Salt	1,210'
Base of Salt / Top Anhydrite	4,850'
Base Anhydrite	5,090'
Lamar	5,090'
Bell Canyon	5,115'
Cherry Canyon	6,130'
Brushy Canyon	7,765'
Bone Spring Lime	9,300'
1st Bone Spring Sand	10,270'
2nd Bone Spring Shale	10,450'
2nd Bone Spring Sand	10,765'
3rd Bone Spring Carb	11,280'
3rd Bone Spring Sand	11,890'
Wolfcamp	12,360'
TD	12,590'

3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,130'	Oil
Brushy Canyon	7,765'	Oil
1st Bone Spring Sand	10,270'	Oil
2nd Bone Spring Shale	10,450'	Oil
2nd Bone Spring Sand	11,765'	Oil
3rd Bone Spring Carb	11,280'	Oil
3rd Bone Spring Sand	11,890'	Oil
Wolfcamp	12,360'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 10.75" casing at 895' and circulating cement back to surface.

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
14.75"	0 – 895'	10.75"	40.5#	J55	STC	1.125	1.25	1.60
9.875"	0-8,000'	7.625"	29.7#	HCP-110	LTC	1.125	1.25	1.60
8.75"	8,000' – 10,800'	7.625"	29.7#	HCP-110	Ultra FJ	1.125	1.25	1.60
6.75"	0'-19,855'	5.5"	23#	HCP-110	ULT SFII	1.125	1.25	1.60

Variance is requested to wave the centralizer requirements for the 7-5/8" FJ casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4" hole interval to maximize cement bond and zonal isolation. Centralizers will be placed in the 9-7/8" hole interval at least one every third joint.

SEE COA

Variance is also requested to wave any centralizer requirements for the 5-1/2" FJ casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

Cementing Program: SEE COA

Depth	No. Sacks	Wt. ppg	Yld Ft^3/ft	Mix Water Gal/sk	Slurry Description
10-3/4" 895	325	13.5	1.73	9.13	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	6.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
7-5/8" 10,800'	750	9.0	2.50	9.06	Class C + 0.6% ASM-3 + 0.15% CDF-4P + 0.6% LTR + 0.5% SCA-6 + 0.13 pps LCL-11 + 0.13 pps LDP-c-0215
	500	12.5	1.71	9.06	Class C + 0.6% LTR + 0.5% SCA-6 + 0.6% ASM-3 + 0.15% CDF-4P + 0.13% LCL-11 + 0.13% LCF-7
	250	15.6	1.19	5.20	Class H + 0.2% ASM-3 + 0.3% SCA-6 + 0.65% LTR + 0.3% SPC-2
5-1/2" 19,855'	725	14.1	1.26	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17

LOW CEMENT SEE COA

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

SEE COA

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (5000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 5000/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 5000/ 250 psig and the annular preventer to 5000/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 895'	Fresh - Gel	8.6-8.8	28-34	N/c
895' – 10,800'	Brine	8.8-10.0	28-34	N/c
10,800' – 19,855' Lateral	Oil Base	10.0-11.5	58-68	3 - 6

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

(A) A kelly cock will be kept in the drill string at all times.

(B) A full opening drill pipe-stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

(C) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

SEE COA

Open-hole logs are not planned for this well.

GR–CCL Will be run in cased hole during completions phase of operations.

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

SEE COA

The estimated bottom-hole temperature (BHT) at TD is 182 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 7528 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from 7,300' to Intermediate casing point.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

11. WELLHEAD:

SEE COA

A multi-bowl wellhead system will be utilized.

After running the 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 5000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 5000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 5000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo FBD100 Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi. Prior to running the intermediate casing, the rams will be changed out to accommodate the 7-5/8" casing. The bonnet seals will be tested to 1500 psi. After installing the intermediate casing the casing rams will be removed and replaced with variable bore rams. The remaining BOPE will not be retested after installing the intermediate casing.

SEE COA

Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

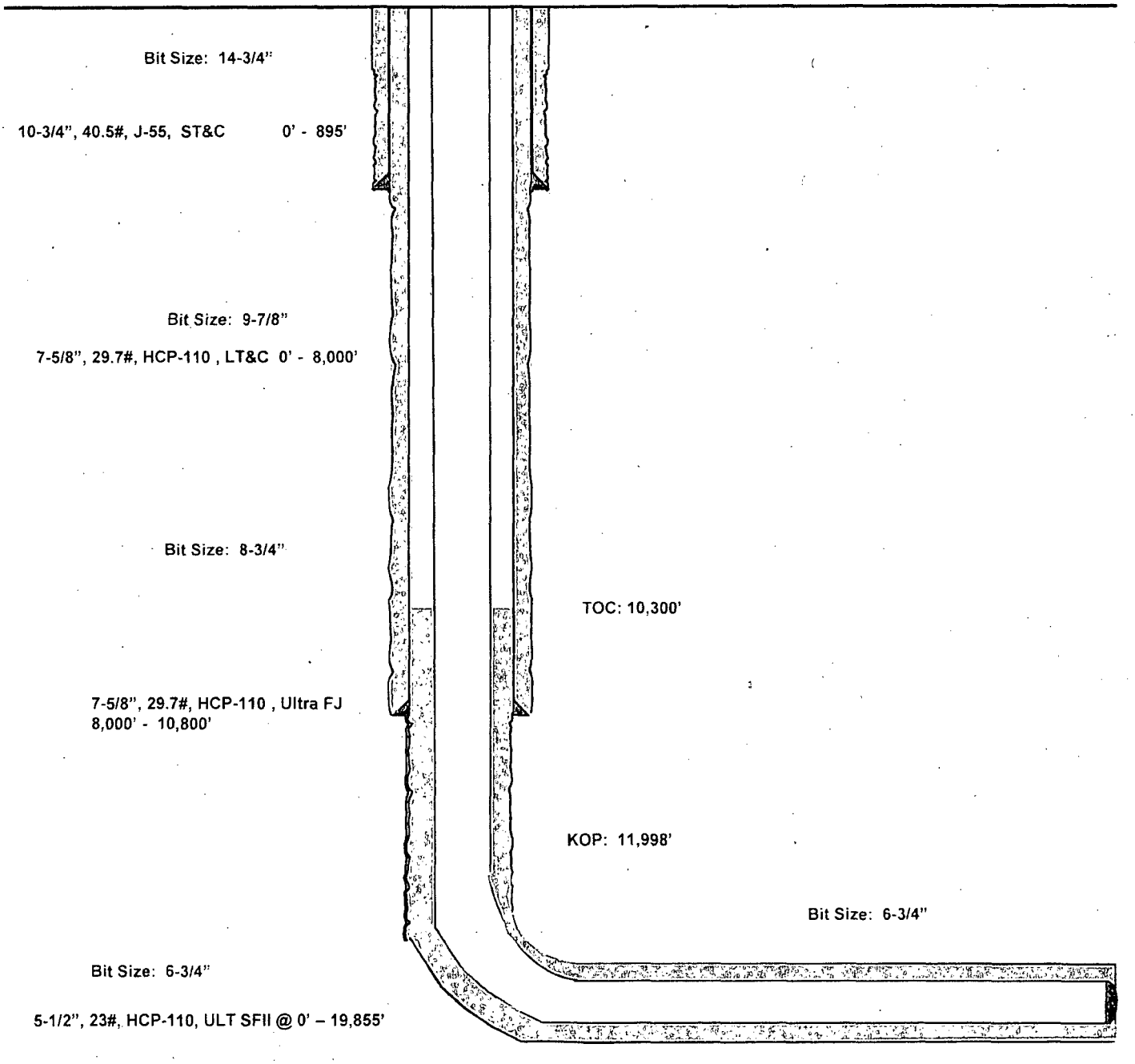
Wellhead drawing Attached.

Endurance 36 State Com #706H

404' FSL
2350' FWL
Section 36
T-26-S, R-33-E

Lea County, New Mexico
Proposed Wellbore
Revised 4/6/16
API: 30-025-***

KB: 3,368'
GL: 3,338'



Lateral: 19,855' MD, 12,590' TVD
Upper Most Perf:
330' FSL & 2326' FWL Sec. 36
Lower Most Perf:
330' FNL & 2314' FWL Sec. 25
BH Location: 230' FNL & 2314' FWL
Section 25
T-26-S, R-33-E

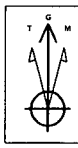
eog resources

Lea County, NM (NAD 27 NME)

Endurance 36 State Com #706H

Precision 612

Plan #.01



Azimuths to Grid North
True North: -0.43°
Magnetic North: 6.63°

Magnetic Field
Strength: 47945.1snT
Dip Angle: 59.88°
Date: 2/25/2016
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.63°
To convert a Magnetic Direction to a True Direction, Add 7.06° East
To convert a True Direction to a Grid Direction, Subtract 0.43°

PROJECT DETAILS: Lea County, NM (NAD 27 NME)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS: #706H

Ground Level: 3338.0
KB = 25' @ 3363.0usft (Precision 612)

Northing	Easting	Latitude	Longitude
365114.00	750095.00	32° 0' 4.488 N	103° 31' 35.624 W

SECTION DETAILS

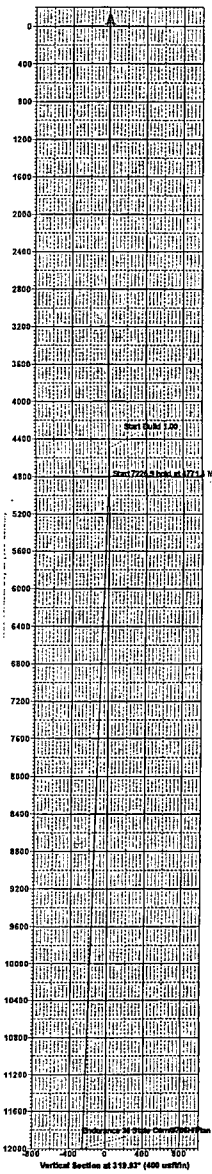
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4500.0	0.00	0.00	4500.0	0.0	0.0	0.00	0.00	0.0	
3	4771.3	2.71	183.08	4771.2	-6.4	-0.3	1.00	183.08	-6.4	
4	11998.2	2.71	183.08	11990.0	-348.0	-18.8	0.00	0.00	-347.8	
5	12925.3	90.00	359.50	12590.0	224.3	-25.5	10.00	176.41	224.6	
6	19855.3	90.00	359.50	12590.0	7154.0	-86.0	0.00	0.00	7154.5	PBHL (End 36 ST COM#706H)

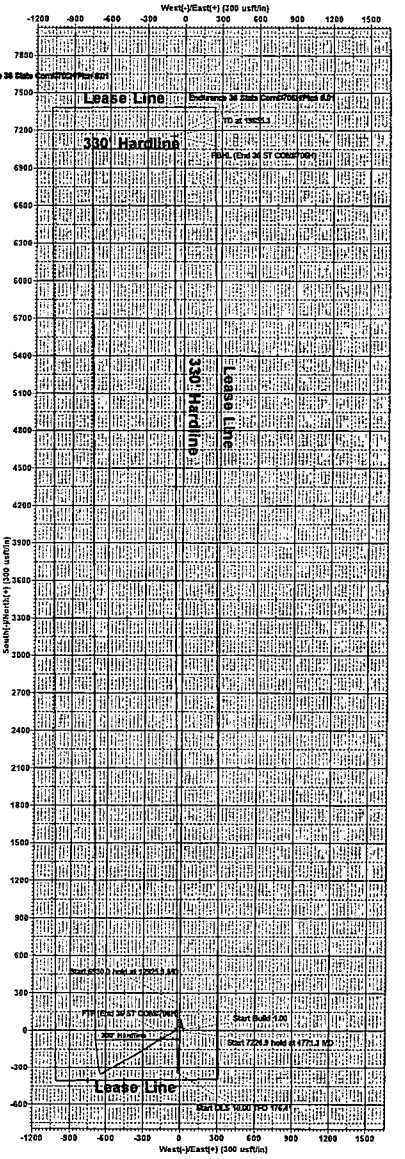
CASING DETAILS

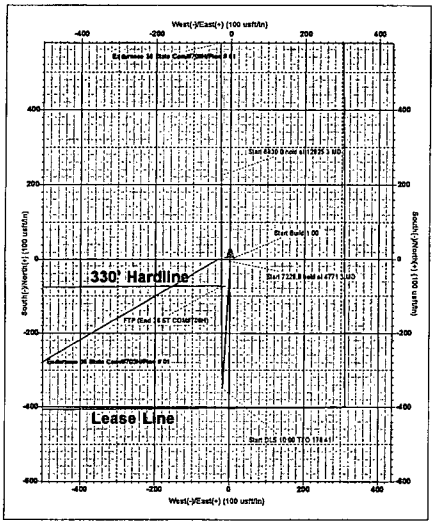
No casing data is available

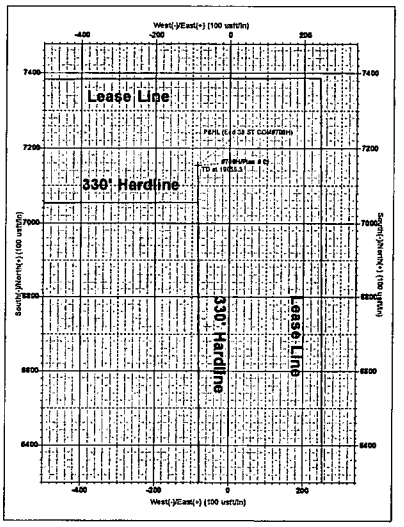
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

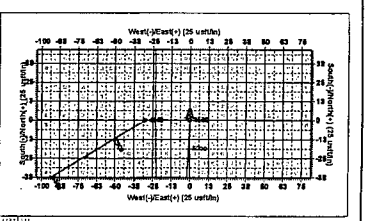
Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (End 36 ST COM#706H)	12590.0	7154.0	-86.0	372268.00	750009.00
FTP (End 36 ST COM#706H)	12590.0	-74.0	-23.0	365040.00	750072.00











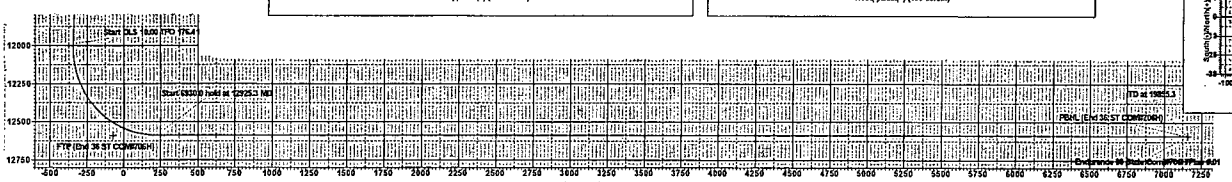
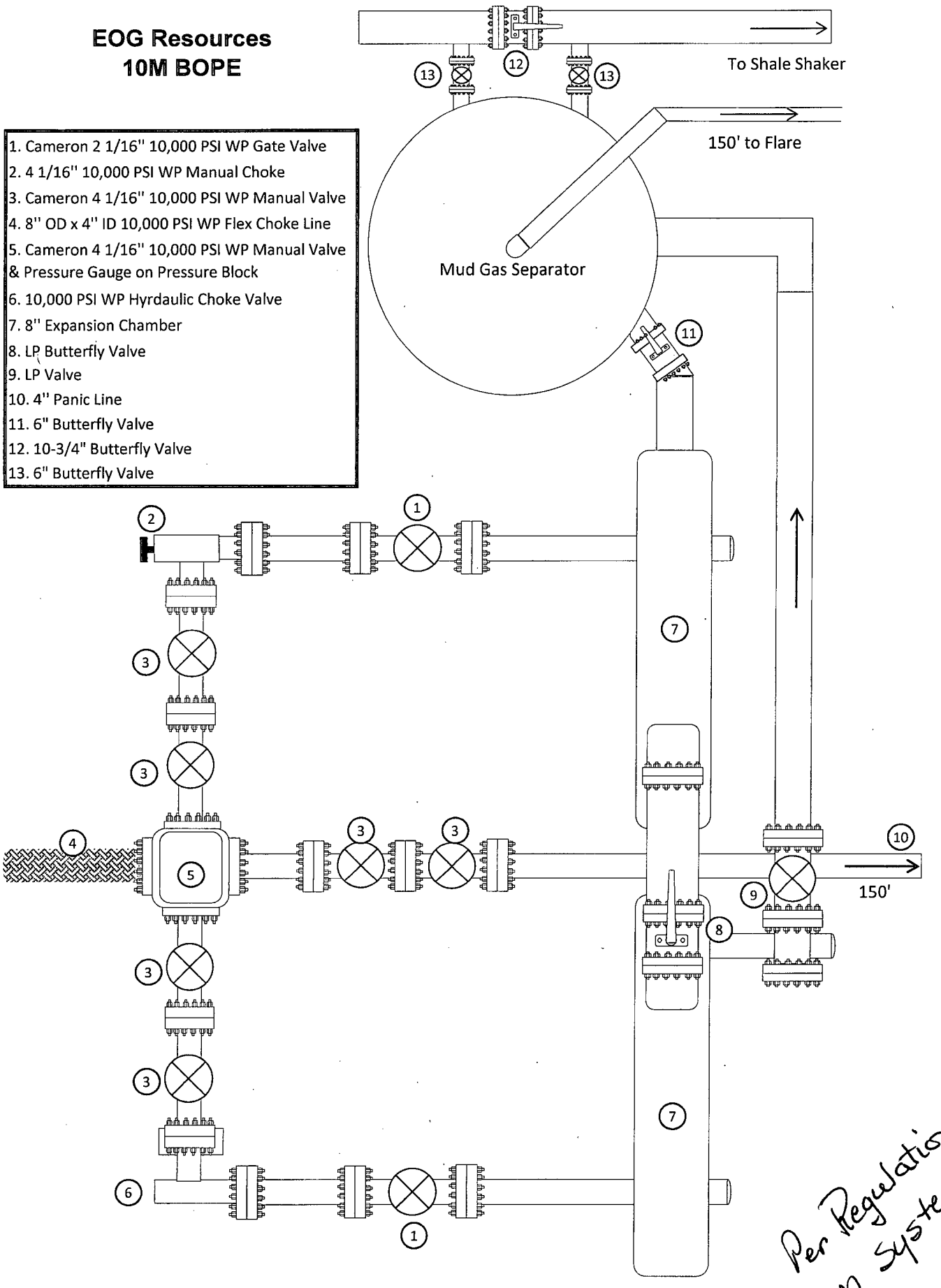


Exhibit 1a

EOG Resources
10M BOPE

1. Cameron 2 1/16" 10,000 PSI WP Gate Valve
2. 4 1/16" 10,000 PSI WP Manual Choke
3. Cameron 4 1/16" 10,000 PSI WP Manual Valve
4. 8" OD x 4" ID 10,000 PSI WP Flex Choke Line
5. Cameron 4 1/16" 10,000 PSI WP Manual Valve & Pressure Gauge on Pressure Block
6. 10,000 PSI WP Hyrdaulic Choke Valve
7. 8" Expansion Chamber
8. LP Butterfly Valve
9. LP Valve
10. 4" Panic Line
11. 6" Butterfly Valve
12. 10-3/4" Butterfly Valve
13. 6" Butterfly Valve



Per Regulation
5M System

EOG 5M Choke Manifold Diagram (rev. 3/21/14)

PREMIUM CONNECTIONS PERFORMANCE DATA

Size 5.500 **NomWt** 23.0 **Grade** P-110 HC

TMK UP ULTRA™ SFII

5.500in 23.0lbs/ft P-110 HC

Technical Data Sheet

Tubular Parameters

Size	5.500	in
Nominal Weight	23.0	lbs/ft
Grade	P-110 HC	
PE Weight	22.54	lbs/ft
Wall Thickness	0.415	in
Nominal ID	4.670	in
Drift Diameter	4.545	in
Nom. Pipe Body Area	6.630	in²

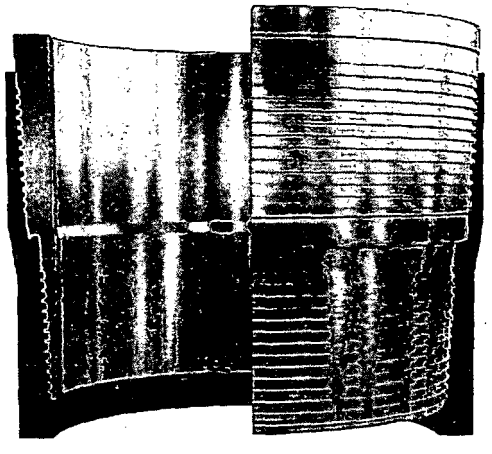
Minimum Yield	110,000	psi
Minimum Tensile	125,000	psi
Yield Load	729,000	lbs
Tensile Load	828,000	lbs
Min. Internal Yield Pressure	14,500	psi
Collapse Pressure	15,110	psi

Connection Parameters

Connection OD	5.726	in
Connection ID	4.626	in
Make - Up Loss	5.653	in
Critical Section Area	5.817	in²
Efficiency - Tension	85%	%
Efficiency - Compression	73%	%
Yield Load In Tension	621,000	lbs
Min. Internal Yield Pressure	14,500	psi
Collapse Pressure	15,110	psi
Uniaxial Bending	78	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	15,500	ft-lbs
Optimum Make-Up Torque	16,300	ft-lbs
Max. Make-Up Torque	18,700	ft-lbs
Yield Torque	24,800	ft-lbs



TMK

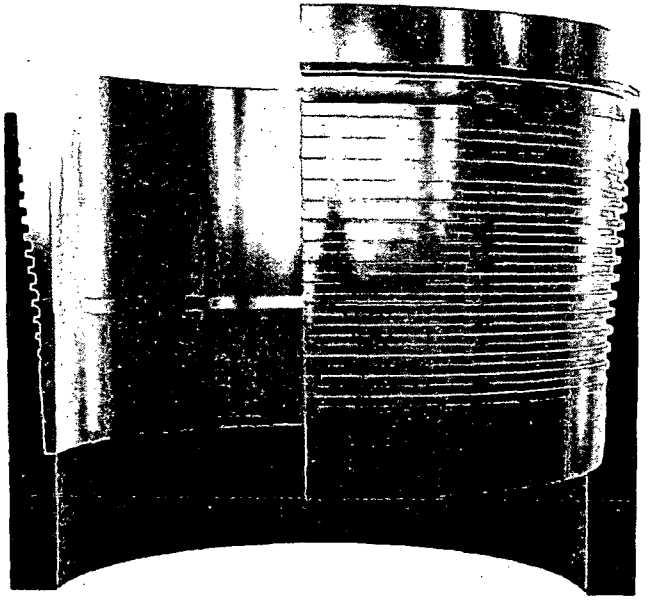
PERFORMANCE DATA

TMK UP ULTRA™ FJ **7.625 in** **29.70 lbs/ft** **P110 HC - EVRAZ**
Technical Data Sheet

Tubular Parameters					
Size	7.625	in	Minimum Yield	110,000	psi
Nominal Weight	29.70	lbs/ft	Minimum Tensile	125,000	psi
Grade	10 HC - EVRAZ		Yield Load	939,000	lbs
PE Weight	29.04	lbs/ft	Tensile Load	1,067,000	lbs
Wall Thickness	0.375	in	Min. Internal Yield Pressure	9,420	psi
Nominal ID	6.875	in	Collapse Pressure	7,610	psi
Drift Diameter	6.750	in			
Nom. Pipe Body Area	8.541	in²			

Connection Parameters		
Connection OD	7.625	in
Connection ID	6.881	in
Make-Up Loss	4.022	in
Critical Section Area	5.316	in²
Tension Efficiency	62.2	%
Compression Efficiency	62.2	%
Yield Load In Tension	584,000	lbs
Min. Internal Yield Pressure	9,470	psi
Collapse Pressure	7,610	psi
Uniaxial Bending	41	°/ 100 ft

Make-Up Torques		
Min. Make-Up Torque	17,700	ft-lbs
Opt. Make-Up Torque	19,700	ft-lbs
Max. Make-Up Torque	21,700	ft-lbs
Yield Torque	31,500	ft-lbs



Manufacturer: Midwest Hose & Specialty

Serial Number: SN#90067

Length: 35'

Size: OD = 8" ID = 4"

Ends: Flanges Size: 4-1/16"

WP Rating: 10,000 psi Anchors required by manfacturer: No

MIDWEST

HOSE AND SPECIALTY INC.

INTERNAL HYDROSTATIC TEST REPORT		
Customer: CACTUS		**P.O. Number:** RIG #123
		Asset # M10761
HOSE SPECIFICATIONS		
Type: CHOKE LINE		**Length:** 35'
I.D. 4" *INCHES*		**O.D.** 8" *INCHES*
WORKING PRESSURE 10,000 *PSI*	**TEST PRESSURE** 15,000 *PSI*	**BURST PRESSURE** *PSI*
COUPLINGS		
Type of End Fitting 4 1/16 10K FLANGE		
Type of Coupling: SWEDGED	**MANUFACTURED BY** MIDWEST HOSE & SPECIALTY	
PROCEDURE		
Hose assembly pressure tested with water at ambient temperature.		
TIME HELD AT TEST PRESSURE 1 *MIN.*	**ACTUAL BURST PRESSURE:** 0 *PSI*	
COMMENTS: SN#90067 M10761 Hose is covered with stainless steel armour cover and wraped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes		
Date: 6/6/2011	**Tested By:** BOBBY FINK	**Approved:** MENDI JACKSON

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

Customer: CACTUS

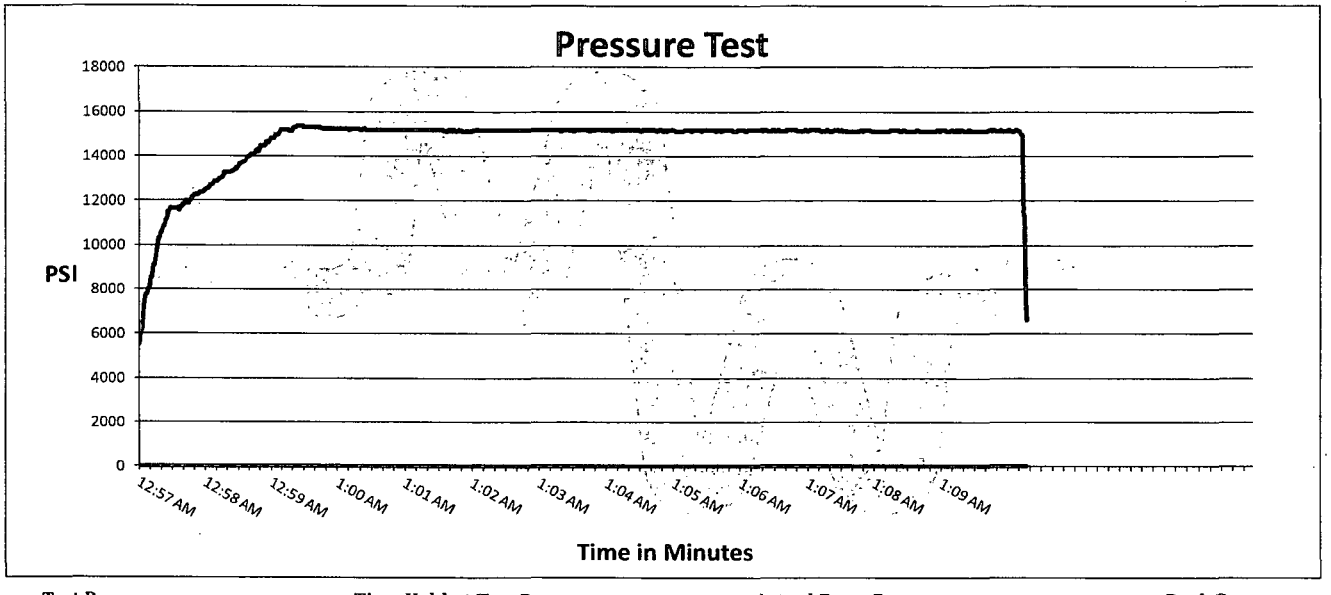
SALES ORDER# 90067

Hose Specifications

Hose Type	Length
C & K	35'
I.D.	**O.D.**
4"	8"
Working Pressure	**Burst Pressure**
10000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4 1/16 10K	Swage
Die Size	**Final O.D.**
6.62"	6.68"
Hose Serial #	**Hose Assembly Serial #**
	90067



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	11 1/4 Minutes		15439 PSI

Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: *Bobby Fink*

Approved By: *Mendi Jackson*

Mendi Jackson

Exhibit 4

EOG Resources
Endurance 36 State Com #706H

Well Site Diagram

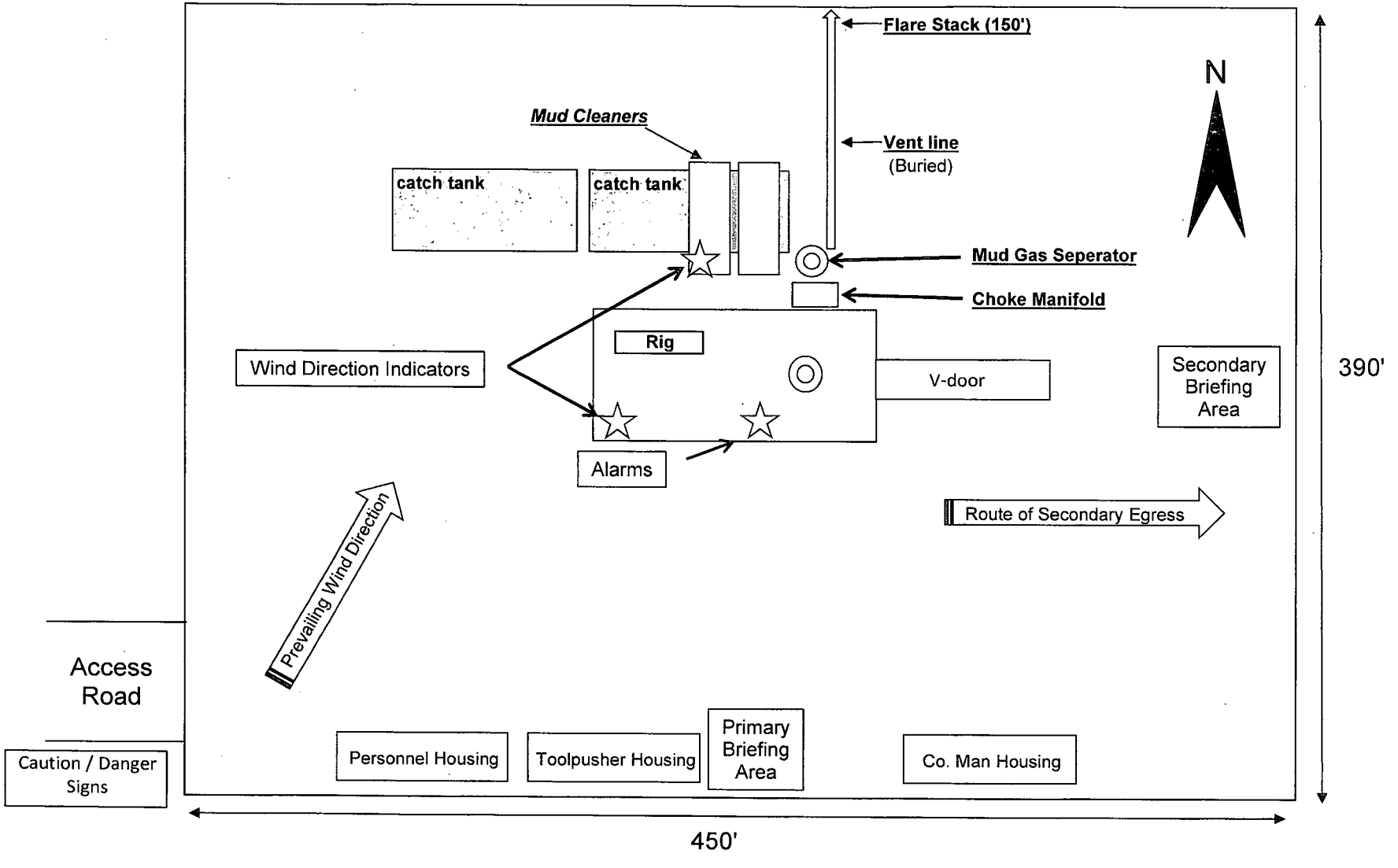


Exhibit 4 (A) Option

EOG Resources
Endurance 36 State Com #706H

Well Site Diagram